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Reactive dissociative experiences in response to acute increases in shame feelings

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Running Head: Shame and dissociation

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Abstract

Studies have not examined if a direct causal relationship exists between shame and dissociation. The current research examined whether increases in dissociation were evident following exposure to acute shame feelings induced via narrative scripts of shame-evoking situations. Following Gilbert's (1998) differentiation between external and internal shame, participants heard shame-inducing or emotionally neutral stories in conditions designed to heighten (1) external shame, (2) internal shame or (3) general shame. In study 1, using a student sample ($N = 78$), dissociation as measured by the Modified Peritraumatic Dissociation Questionnaire was elevated during the shame script compared to the neutral script regardless of the type of shame participants were exposed to. A strong correlation was found between trait shame and trait dissociation. In study 2, using a treatment-attending sample ($N = 33$) and assessing intrusions in the two days following the script exposure, participants again demonstrated an increase in acute dissociative experiences during the shame script compared to the neutral script regardless of the type of shame evoked. Intrusions were present for the shame narrative with the distress they caused related to acute (peri-experimental) dissociation. Elevations in shame feelings produced a reactive response in dissociative experiences, which may heighten the distress associated with shame-filled intrusions.

Reactive dissociative experiences in response to acute increases in shame feelings

The treatment literature on complex trauma disorders, like dissociative identity disorder, chronic posttraumatic stress disorders (PTSD) and disorders of extreme stress/complex PTSD, are replete with descriptions of shame, its impact on the posttraumatic self and its importance as a treatment focus (e.g., Chefetz, 2015; Herman, 2011; Kluft, 2007; Wilson, Drozdek, & Turkovic, 2006). Dissociation is a feature of complex trauma disorders and increasingly associated with shame. Studies report a moderate-to-strong correlation between trait (or more stable) measures of shame and dissociation in traumatized samples and non-clinical groups (e.g., Dorahy, 2010; Irwin, 1998; Thomson, & Jaque, 2013). This raises the causal question of whether these two variables are directly linked at an acute level, with dissociation activating heightened shame feelings, or elevated shame increasing dissociative experiences (Dorahy, 2010; Dorahy et al., 2013). To take a first step in teasing apart this potential direct relationship, and because dissociation as measured by self-report scales is often conceived as a response to painful affect (Diseth, 2006; Irwin, 1998), this research examined if elevation in shame causally increased dissociative experiences. If shame is directly related to increases in dissociative experiences, this has implications for clinical settings (e.g., therapists being mindful of the potential for dissociation during shame-evoking disclosures and discussions) as well as emergency and protective services settings (e.g., police officers being aware of dissociation as a potential response when questioning a victim of a shame-filled sexual assault).

Dissociation is a complex psychobiological construct prone to misunderstanding (Dell, 2009). It can be seen as a way the personality is organized following exposure to traumatic stress or hypnotic induction (i.e., structural view;

Van der Hart & Dorahy, 2009; Van der Hart, Nijenhuis & Steele, 2006). In addition, it captures a means of facilitating and maintaining a separation in normally integrated mental content and actions (i.e., process view; Chefetz, 2015). Finally, it may reflect a set of discrete experiences and symptoms that come from a dissociative structure and/or process and may operate to reduce the impact of painful affects and experiences (i.e., phenomenological view; see Dorahy & Van der Hart, 2007). The current research adopts this latter view, focusing on symptoms and experiences of dissociation, as typically assessed in self-report measures, and examines whether increases in dissociative phenomena are evident after inducing shame feelings via a narrative exposure task. Despite the controversy regarding what constitutes dissociative phenomena (c.f., Dalenberg & Paulson, 2009; Steele, Dorahy, Van der Hart & Nijenhuis, 2009), a standardized assessment tool was used that like most dissociation assessment tools, captured phenomena undisputedly dissociative, as well as disputed phenomena.

Dissociative phenomena have been associated with the heightening of an array of affects (Calamari & Pini, 2003; Irwin, 1994, 1998). Rugens and Terhune (2013) found that those participants who had a trait propensity toward dissociation reported more dissociation immediately after exposure to guilt cues than after exposure to general negative cues and neutral cues. Such findings have led to the suggestion that dissociative phenomena may have affect regulation value, reducing the emotional impact of painful feelings by creating psychological distance via experiences such as depersonalization, derealization, intense absorption in selected stimuli, confusion about oneself, losing self-reference, and amnesia (e.g., Platt & Freyd, 2015). However, perennial dissociative reactions to painful stimuli as a means of buffering their impact creates significant problems for healthy integrated psychological

function, where feelings can guide behavior and be regulated in adaptive ways (Chefet, 2015).

Arguably the most acutely painful, socially debilitating and ignored affective experience is shame (Lewis, 1971; Keltner & Harker, 1998), signaling a threat to the social self (Dickerson & Kemeny, 2004). Shame is manifested as an excruciating psychophysiological affect with thoughts of worthlessness and inferiority, and an immediate desire to hide, cover up or transform the feeling (e.g., into anger) to reduce its impact on the self (Nathanson, 1992; Tangney, Wagner, Fletcher, & Gramzow, 1992). The acute experience of shame can be measured as state shame, which is understood in this study to reflect the immediate feeling of being inferior, and wanting to escape that feeling and the context that drives it. An ongoing proneness to shame can be assessed as trait shame, which is understood in this study to reflect enduring thoughts and feelings associated with the self as inferior. Markers of shame are considered relatively universal and innate based on evidence that blind, congenitally blind, and sighted athletes from different nations all express virtually identical expressions of shame (Tracy & Matsumoto, 2008). Wurmser (1987) points out that "...the eye is the organ of shame par excellence", and an initial behavioral step in trying to hide following shame activation is eye-gaze diversion in the form of lowering gaze away from the shaming stimuli or other people (Darwin, 1872; Keltner, 1995).

Shame is intimately tied with 'not measuring up' as judged by how the person views their self and/or how they believe they are viewed by others (Keltner & Harker, 1998; Gilbert & McGuire, 1998). Gilbert (1998) has differentiated between *external shame*, shame deriving from attentional focus towards how one perceives themselves in the minds of others, and *internal shame*, how one views oneself. External shame

relates to the perception that one is seen by others as an object of contempt, ridicule or scorn. With internal shame, the person views their self as an object of contempt, ridicule and scorn. While Gilbert (2007) suggests these forms of shame should be understood as independent, such that a person may feel external shame (e.g., for being from an ethnic minority group), but not internal shame (e.g., not feeling ashamed of their ethnicity), he notes that external and internal shame are usually intimately related. Given shame is typically understood as a social emotion (Chefet, 2015; DeYoung, 2015), Gilbert (2007) suggests external shame provides the foundation for internal shame, in that shame experiences and the perception of being scorned in the eyes of others allows a person to see themselves as inferior and with self-contempt. As such, external shame merges to a greater or lesser extent with internal shame, but external shame can exist in isolation from internal shame. Examining internal and external shame in the current study allows an investigation of whether dissociation is more uniquely elevated in one, or whether it is reactive to both forms of shame experience, thereby strengthening the evidence for the association between shame feelings generally (regardless of what induced them) and dissociation.

Evidence suggests shame can act as an inner warning signal for challenges and threats to the self, in turn triggering one's automatic defenses, specifically the desire to escape or behaviorally submit (Gilbert, 2007; Keltner & Harker, 1998). Not surprisingly, dissociation has been linked to shame (Chefet, 2015; Platt & Freyd, 2015; Talbot, Talbot, & Tu, 2004; Thomson & Jaque, 2013), and Bromberg (1998) argues for a causal connection, stating, "[s]hame signals a traumatic attack upon one's personal identity, and typically calls forth dissociative processes to preserve selfhood" (p. 295). However, no studies have experimentally tested whether shame increases dissociative experiences.

The current study examined if a direct causal relationship exists between elevations in shame and experiences of dissociation. A paradigm was used similar to previous research demonstrating the influence of affect on judgments and behavior by having participants imagine and write about a time they experienced a certain emotion (DeSteno, Dasgupta, Bartlett & Cajdric, 2004; Parker & Isbell, 2010; Tiedens & Linton, 2001). In this study, participants were taken through scenarios that they were asked to imagine themselves in. Dissociative phenomena were assessed during narrative scripts designed to elicit (1) feelings of shame *and* (2) no strong affect (neutral). Participants heard both narrative scripts after being randomly assigned to one of three different conditions to examine if dissociation was differentially heightened in contexts resembling: (1) high-level external shame (i.e., looking at experimenter while reading shame and neutral scripts), (2) high-level internal shame with low-level external shame (looking at self in mirror with experimenter in the room while reading scripts), and (3) low level external and internal shame (looking at two white strips on a blank screen with experimenter in the room while reading scripts). Given dissociative experiences are often a reaction to painful emotions, it was expected dissociation would increase following shame, but not neutral scripts. However, no specific hypotheses were drawn for differences across the three shame conditions as this was exploratory. It is possible that the intensity of the high-level external shame condition may increase dissociation to a higher level than at least the low external and internal shame condition. Alternatively, and perhaps more likely though, the three conditions may show similar elevations in dissociation, given dissociation is typically thought to be reactive to distressing feelings. Such findings would support dissociation as an automated general response to heightened shame feelings regardless of context (i.e., at home alone thinking of oneself in a shaming

manner, in public believing others are critically judging, or remembering a shameful experience).

Study 1

Method

Participants. Participants were 78 undergraduates from a large New Zealand University, recruited via email advertisements and flyers posted around campus. Fifty-nine (75.6%) were female. Ages ranged from 18 years to 42 years ($M = 21.88$; $SD = 4.68$). Sixty three (80.8%) identified as New Zealand European, while 15 (19.2%) identified as New Zealand Māori, and a mix of other groups (e.g., Chinese, European and South African).

Questionnaires. In addition to three brief demographic questions (sex, age, and ethnicity), four questionnaires measured: (a) state shame, (b) state dissociation, (c) trait shame, (d) trait dissociation. All questionnaires were completed online using Qualtrics (2011). Five single item measures of shame, anger, anxiety, sadness and guilt were given after the shame condition to see if shame was elevated above other negative emotions for the shame script.

State Shame. The State Shame and Guilt Scale (SSGS, Marschall, Sanftner, & Tangney, 1994) is a 15-item self-report measure with three subscales of five items assessing acute pride, shame, and guilt. Only the state shame subscale was used to provide a validity check for shame induction (Marschall et al., 1994). Participants rated their experience of each item at that moment on a five-point scale from 1 (not feeling this way at all) to 5 (feeling this way very strongly). Scores ranged from 5 to 25 with higher scores indicating greater emotional intensity. Among college-age samples, the measure has solid psychometric properties, with a Cronbach's Alpha ranging from .82 to .89 for each subscale (Marschall et al., 1994). In the current study

the state shame measure had alphas of .77, .79, and .90, for baseline, control and shame conditions, respectively.

State Dissociation. The Modified Peritraumatic Dissociative Experiences Questionnaire (MPDEQ; Marshall, Orlando, Jaycox, Foy & Belzberg, 2002) is an eight-item self-report adaptation of the original 10-item PDEQ (Marmar, Weiss & Metzler, 1997), assessing dissociation around the time of a specific (often distressing) event. The modified version was designed for use in a broad social demographic, beyond white, middle class participants (Marshall et al., 2002). Items are rated from 1 (not at all true) to 5 (extremely true) and the scale has good psychometric properties (Marshall et al., 2002). This questionnaire was utilized in the current study to assess dissociation during the induction scripts (peri-experimental dissociation). Alphas were .88 and .86 for control and shame conditions, respectively

Trait Dissociation. The Dissociation Tension Scale (DSS; Stiglmayr et al., 2010) is a 21-item self-rating instrument assessing psychological (10 items) and somatoform (9 items) dissociative experiences. Ratings capture the amount of time the phenomena are experienced from 0% (never) to 100% (constantly) over the past week. The psychometric qualities of the DSS are high (Stiglmayr et al., 2010). It was used here to determine current trait dissociation and the total scale had an alpha of .87.

Trait Shame. The Internalised Shame Scale (ISS, Cook, 2001) consists of 30-items rated from 0 (Never) to 4 (Almost Always). Six items comprise a self-esteem subscale, and the remaining 24 comprise the internalised shame subscale. Scores for internalised shame range from 0 to 96. The psychometric properties using clinical and non-clinical samples are well attested (e.g., Cook, 2001). The ISS was used here to assess trait shame and had an alpha of .94.

Single item measures. Five single item measures of specific emotions were constructed that assessed shame, guilt, sadness, anxiety and anger. These were given after the shame script and read: “While listening to the audio, how much did you notice having each of the following feelings? (please rate to the nearest whole number, where 0 is not at all and 100 is completely).” The feelings were then presented individually with the rating scale.

Experimental stimuli.

Induction scripts. Induction scripts were developed to induce either shame or neutral feelings (‘emotional script’), and involved three differing scenarios (‘scenarios’): a bank scene, a bedroom scene, and a pool scene. In the shame scripts, the bank scenario involved nasal mucus being discovered on one’s face by a mocking bank teller, the bedroom scenario involved being caught by a respected family member masturbating to pornographic material in one’s bedroom, and the pool scenario involved having soiled underwear in a swimming pool changing room which others noticed. The neutral scripts contained the same motif, story length and context (e.g., bank, bedroom, pool), but the shame-inducing material was replaced with neutral material (see Appendix for example of shame and neutral ‘bank scenario’). Each script had 14 (bank), 15 (bedroom) or 17 (pool) sentences, broken into three sentence types based on their emotional content: neutral sentences (the first two – four sentences that had no emotional material); shame/shame-replacement sentences (the sixth – ninth sentences, which were the middle of the scripts that contained shame stimuli [shame scripts] or neutral stimuli [neutral scripts]) and residual shame sentences (the last three - four sentences in the scripts that contained no direct shame stimuli, but mentioned the after-effects [shame script]).

The scripts were presented to participants as second person narratives (e.g., ‘you went into the bank’) via headphones. They then verbalized each sentence of the script in the first person after hearing it (e.g., ‘I went into the bank’). This was designed to increase absorption in the task and heighten the self-referential quality of the story. The scripts were played via E-Prime Software. After hearing each script, participants were asked to rate how much they felt ‘a part of’ and ‘absorbed in’ the narratives on a 5-point Likert scale from 1 (not at all) to 5 (completely).

Internal and External Shame. To examine dissociation in conditions designed to mimic internal and external shame, three experimental conditions that varied the target of eye contact were developed. To assess if dissociation was evident in ‘external shame’ experiences, participants were required to look into the eyes of the researcher, through the window side of a 500mm by 500mm one way mirror, while verbalizing one of the randomly assigned emotion induction scripts and its neutral counterpart. Participants in the ‘internal shame condition’ (which had low-level external shame) were required to look into their own eyes via a one-way mirror, while also verbalizing an emotion induction script and its neutral counterpart. The researcher remained in the room, but unobtrusively out of sight. Finally, participants assigned to the ‘general shame condition’ were required to focus on two white strips approximately 30mm by 10mm placed on a blank black screen that was put in front of the window/mirror while hearing and verbalizing the inductions. The experimenter remained unobtrusively in the room and out of sight, thus creating a low-level of external shame. A darkened room as well as lighting on the mirror side of the one-way mirror heightened the effect of the mirror/window. A fully rotatable video camera (camcorder) mounted on top of the timber framework holding the one-way mirror recorded participant’s head and facial movements during the study. The three

conditions were pilot tested before the study to refine the procedure and ensure shame increased via self-report when the shame scripts were presented in each condition.

Eye gaze. Facial expressions during the induction scripts were assessed using Ekman and Friesen's Facial Action Coding System (FACS: Ekman & Friesen, 1978). As a behavioral marker of shame, eye gaze diversion was used, given it is intimately linked with shame (e.g., Keltner, 1995). Scoring involved noting each time an action unit occurred (i.e., eye gaze diversion away from the mirror, researcher, or white strips), and the precise sentence it occurred on. Gaze diversion was coded as gaze right, gaze left, gaze up, or gaze down, and then summed to give a final score for each script. Initial coding was conducted by HM and examined independently by AS in full. Discrepancies were reviewed independently by MJD and assigned.

Procedure. Participants were assessed individually in a darkened laboratory illuminated by a single desk lamp to reduce glare off the window or mirror. To further reduce glare, all participants were given a black shirt to wear. Upon offering consent, participants were given written and verbal instructions outlining the study tasks and randomly assigned to one condition (i.e., mirror, experimenter, blank screen) and scenario (bank, bedroom, pool). They then completed the demographic and trait measures (i.e., ISS, DSS), and after being placed in front of the mirror (internal shame), window (external shame), or blank screen (general shame), they completed the baseline state shame measure (SGSS).

Participants were told they then would hear a story through headphones and at the end of every sentence, they had to repeat that sentence aloud while looking at themselves (mirror), the researcher (who maintained a neutral facial expression throughout), or the white strips. They were also told that the sentences would be presented in the second person (e.g., 'You'), but on repeating them aloud, they needed

to convert the sentences into the first person (e.g., 'I'). Participants were further reminded to keep their eyes focused on the target (themselves, the researcher, or the white strips), and to immerse themselves in the scenario. With headphones on, participants were given practice trials of three neutral sentences to familiarize themselves with the procedure. They then randomly heard (then spoke aloud) either the neutral or shame script and completed the measures of state shame, dissociation (MPDEQ) and the single item measures of emotion (shame, anger, guilt, sadness, anxiety), as well as questions assessing how absorbed they felt while hearing the story.

Following a short break where instructions were reiterated, participants completed the second script in the same manner as the first. Prior to leaving the laboratory, participants were verbally debriefed, provided with a list of support services, and given a shopping voucher for participating. The study was approved by the relevant Human Ethics Committee.

Data Analysis

The between-subject independent variable 'scenarios' encompassed the three different scenes used in the stories: 'bank', 'bedroom', 'pool'. Exposure to the neutral and shame scripts of those scenarios was captured by the independent variable, 'emotional script' (within-subjects). The 'condition' between-subject independent variable included the three conditions designed as an analogue for internal shame (looking at self in mirror), external shame (looking at experimenter) and general shame (looking at blank screen).

Central dependent variables for assessing whether the shame script increased feelings of shame and whether differences existed across conditions included eye gaze diversion and state shame (i.e., State Shame subscale of the SSGS). To determine if

differences existed across condition or emotional script for engagement in the stories, ‘feeling a part of’ and ‘being absorbed in’ the narratives were used. The dependent variable of ‘peri-experimental dissociation’ (MPDEQ) assessed the hypothesized increase in dissociation following exposure to the shame scripts. Analyses used MANOVA and ANOVA, with Pillai’s trace statistics presented for MANOVA findings.

Results

To determine if the three different scenarios (bank, bedroom, pool) produced different outcomes, a 3 (scenario) x 2 (emotional script: neutral, shame) mixed MANOVA was conducted with the dependent variables of state shame and state dissociation used. There was no significant multivariate main effect for scenario, $V = .12$, $F(4, 150) = 2.34$, $p = .06$, $\eta_p^2 = .06$, and no interaction between scenario and script, $V = .04$, $F(4, 150) = .82$, $p = .52$, $\eta_p^2 = .02$. The multivariate effect for script was significant, $V = .35$, $F(2, 74) = 19.54$, $p < .001$, $\eta_p^2 = .35$, with higher state shame, $F(1, 75) = 36.77$, $p < .001$, $\eta_p^2 = .33$, and dissociation, $F(1, 75) = 13.59$, $p < .001$, $\eta_p^2 = .15$, scores in the shame script. A similar MANOVA was conducted on the validity check variables of feeling a part of the story, feeling absorbed by the story and gaze diversion. The multivariate main effect for scenario was significant, $V = .24$, $F(6, 148) = 3.39$, $p = .004$, $\eta_p^2 = .12$. The bedroom scenario produced more gaze diversion than the bank ($p < .001$) and pool ($p = .001$) scenarios, but no other differences were present. The main effect for script was also significant, $V = .12$, $F(6, 148) = 3.45$, $p = .02$, $\eta_p^2 = .12$, with higher gaze diversion in the shame than neutral script, $F(1, 75) = 6.44$, $p = .013$, $\eta_p^2 = .08$. No differences were present across scenario for feeling apart of, $F(1, 75) = 1.38$, $p = .24$, $\eta_p^2 = .02$, or being absorbed in, $F(1, 75) = 1.51$, $p = .22$, $\eta_p^2 = .02$, the narratives. There was also no evidence of a multivariate interaction

between scenario and script, $V = .09$, $F(6, 148) = 1.11$, $p = .36$, $\eta_p^2 = .04$. The lack of interactions in both analyses suggests the findings were similar on all tested dependent variables for each scenario across the two scripts. Consequently, the three scenarios were merged and not treated as an independent variable.

Trait variables and manipulation checks. Table 1 shows the descriptive statistics for age, gender, ethnicity and the trait variables across conditions. No age differences were evident across condition, $F(2, 75) = 0.70$, $p = .50$, $\eta_p^2 = .02$. Due to the low cell count for males in the neutral condition, no inferential statistics were calculated, but females outnumbered males in the three conditions. Inferential statistics were not conducted on ethnicity, where there was a largely even distribution across the three conditions. A one-way MANOVA was conducted with condition as the independent variable, and ISS trait shame, ISS self-esteem, DSS somatoform dissociation, DSS psychoform dissociation, and DSS trait dissociation total as dependent variables. There was no multivariate main effect for condition, $V = .07$, $F(10, 144) = 0.53$, $p = .87$, $\eta_p^2 = .04$, suggesting the groups did not differ across condition for trait measures. Trait dissociation and trait shame were strongly correlated, $r = .51$, $p < .001$.

A two-way (emotional script x condition) MANOVA on the degree participants felt a part of, and absorbed in the stories (Table 2) produced no multivariate main effect for emotional script, $V = .03$, $F(2, 74) = 0.96$, $p = .39$, $\eta_p^2 = .03$, or condition, $V = .04$, $F(4, 150) = .79$, $p = .53$, $\eta_p^2 = .02$, and no interaction effect, $V = .09$, $F(4, 150) = 1.83$, $p = .13$, $\eta_p^2 = .05$. Consequently, participants felt a part of, and absorbed in the story to the same degree for both scripts and across the three conditions.

A two-way (emotional script x condition) ANOVA on state shame (Table 2) revealed a main effect for emotional script, $F(2, 150) = 30.11, p < .001, \eta_p^2 = .29$, with higher shame scores during the shame script than in both baseline, $t(77) = -5.54, p < .001$, and neutral scripts, $t(77) = -6.04, p < .001$. There was no significant main effect for condition, $F(2, 75) = 1.40, p = .25, \eta_p^2 = .04$, nor the interaction, $F(4, 150) = 1.10, p = .36, \eta_p^2 = .02$. Thus, state shame rose significantly following exposure to the shame script regardless of whether participants looked at themselves, at the experimenter, or the white strips. Controlling for trait shame did not impact on result, with state shame still rising significantly with exposure to the shame scripts, $F(2, 148) = 3.99, p = .02, \eta_p^2 = .05$. The ability of the shame script to adequately induce shame was further supported by a main effect for emotional script, $F(1, 75) = 6.34, p = .01, \eta_p^2 = .08$, in the two-way (emotional script x condition) ANOVA on gaze diversion. Participants diverted gaze significantly more while hearing the shame script than the neutral script (Table 2). The main effect for condition fell marginally short of significance, $F(2, 75) = 2.89, p = .06, \eta_p^2 = .07$, and there was no significant interaction between emotional script and condition, $F(2, 75) = 1.44, p = .24, \eta_p^2 = .04$.

Finally, the single item emotion measures following the shame scenario were submitted to a repeated measures ANOVA with simple comparisons against the shame rating. The main effect was significant, $F(4, 308) = 37.34, p < .001, \eta_p^2 = .33$, with scores for shame ($M = 38.83; SD = 32.67$) significantly higher than those for guilt ($M = 12.69; SD = 25.07, F(1, 77) = 81.85, p < .001, \eta_p^2 = .51$), sadness ($M = 11.78; SD = 22.48; F(1, 77) = 63.68, p < .001, \eta_p^2 = .45$), anger ($M = 8.19; SD = 14.02, F(1, 77) = 67.65, p < .001, \eta_p^2 = .47$) and anxiety ($M = 29.93; SD = 32.39, F(1, 77) = 13.28, p < .001, \eta_p^2 = .15$).

Shame exposure and peri-experimental dissociation. A two-way (emotional script x condition) ANOVA on peri-experimental dissociation (MPDEQ) scores produced a main effect for emotional script, $F(1, 75) = 13.58, p < .001, \eta_p^2 = .15$, with more dissociation during exposure to the shame script. Both the condition, $F(2, 75) = 1.60, p = .21, \eta_p^2 = .04$, and interaction, $F(2, 75) = 0.10, p = .99, \eta_p^2 = .00$, effects failed to reach significance. Consequently, dissociation scores uniformly increased across conditions for the shame script. To completely isolate peri-experimental dissociative phenomena with increases in acute shame feelings, the analysis was re-run with trait shame (ISS) and trait dissociation (DSS) as covariates. Results did not change. A main effect still emerged for emotional scripts, $F(1, 73) = 4.11, p = .046, \eta_p^2 = .05$, while the condition, $F(2, 75) = .10, p = .99, \eta_p^2 = .00$, and interaction, $F(2, 73) = .03, p = .97, \eta_p^2 = .001$, effects remained non-significant.

Discussion

To the best of our knowledge, this is the first study to directly assess the causal relationship between shame activation and reactive dissociative experiences. The shame narratives were associated with increases in both self-report (subjective) and behavioral (objective) markers (gaze diversion) of shame compared to the matched neutral narratives, and produced a uniformed increase in reported dissociative experiences across all three conditions (external shame, internal shame, general shame). Such findings are consistent with the hypothesis that dissociation would increase in the presence of shame regardless of whether it was primarily experienced in the context of another person (external shame) or the context of oneself (internal shame). The fact that elevated dissociation was present in the general shame condition, where the characteristics of external or internal shame were not heightened, and that this condition did not differ in dissociative responses compared

to the other two conditions, suggests dissociation may be a general response to the activation of shame. This finding makes more specific the connection between shame and dissociation evident in the trait findings here ($r = .51$) and elsewhere (e.g., Thomson & Jaque, 2013). But given the relatively small sample size, the confidence of this null finding across different shame types requires replication.

Rugens and Terhune (2013) found that when participants were exposed to cues activating guilt feelings, dissociative experiences were heightened in those with a greater trait propensity for dissociation. This suggests the foundation to experience dissociation during elevated affective experiences is a general tendency to experience dissociation in daily life (i.e., those with a higher proneness to dissociation have dissociative responses when strong painful feelings are activated). The current study, using a similar sample to Rugens and Terhune (2013) found that regardless of trait level of dissociation, dissociative experiences were elevated following heightened shame. Consequently, at least in this non-clinical group, dissociative responses to shame activation seem independent of a trait proneness to dissociate; affect triggers dissociation regardless of the person's ongoing tendency to have dissociative experiences.

The most pressing questions from these findings are: (1) whether the results are generalizable, especially in individuals experiencing psychological difficulties, and (2) whether dissociation during shame activation has any negative consequences for ongoing psychological wellbeing. Study 2 sought to address replicability using a clinical sample to determine if dissociation during shame elevation is related to the development of intrusive thoughts.

Study 2

Matos and Pinto-Gouveia (2010) found that memories of shame-filled experiences have the characteristics of traumatic memory. In asking participants to recall an early shame memory and complete in regard to it a measure assessing posttraumatic symptoms, they found intrusions, avoidance, and arousal were positively correlated with both internal and external shame scores. These results suggest that shame memories may have the features of trauma memories: they are avoided, but also intrusively and arousingly reactivated. Shame-filled memories have been found to be associated with a sense of ongoing threat that may maintain PTSD (Harman & Lee, 2010).

Intrusions following exposure to traumatic or distressing events have been examined experimentally (Holmes & Bourne, 2008). While there have been mixed findings (e.g., Holmes, Brewin, & Hennessey, 2004), spontaneous dissociation during exposure to such events has been associated with the development of later intrusions (e.g., Dorahy, Peck, & Huntjens, in press; Kindt, Van den Hout, & Buck, 2005). For example, in several studies using different threat/trauma induction methods, dissociation was related to later intrusions (Laposa & Rector, 2012). The Diagnostic and Statistical Manual of Mental Disorder – 5th edition (DSM-5; APA, 2013) has emphasized the role of both shame and dissociation in the presentation of PTSD and the empirical literature suggests that both can play an etiological role in the development of posttraumatic stress symptoms like intrusions (e.g., Andrews, Brewin, Rose, & Kirk, 2000; Ozer, Best, Lipsey, & Weiss, 2003).

Beyond examining the replicability of Study 1 using the same conditions but with a clinical sample, this study examined if the shame narratives and dissociation were associated with intrusions in the first two days following exposure. In addition, study 1 found that trait measures of shame and dissociation were strongly correlated,

supporting previous work. This study sought to determine if that association held when using different measures of trait shame and dissociation.

In line with Study 1, it was predicted that increases in state shame would produce reactive dissociative experiences, and the association between shame and dissociation would also be evident at a trait level. Consistent with Matos and Pinto-Gouveia's (2010) work, it was expected that the shame script would produce intrusions regardless of whether internal or external shame was mobilized, and dissociation would be related to the frequency and distress of intrusions.

Method

Participants. The effect size between the neutral script and the shame script (collapsed across Condition) for Study 1 peri-experimental dissociation scores was $d = .398$, producing a required sample size for the current study of 30 for 96% power. Thirty three participants in therapy for psychological or relationship difficulties were recruited. Slightly over half were female ($n = 18$; 55%) and the sample were aged between 19 years and 63 years ($M = 36.1$; $SD = 14.10$). New Zealand Europeans accounted for 78.8% ($n = 26$) of the sample, with New Zealand Māori (3%; $n = 1$) and a mix of 'other' groups (18.6%; $n = 6$; e.g., Korean, British, Dutch) making the remainder of the sample. Reasons for engaging in therapy included: anxiety disorders (24.2%; $n = 8$), depression (21.2%; $n = 7$), trauma/PTSD (30.3%; $n = 10$), grief (6.1%, $n = 2$), relationship difficulties (6.1%; $n = 2$), personal growth (6.1%; $n = 2$), anorexia (3%; $n = 1$) and personality disorders (3%; $n = 1$). Participants were recruited via three local therapy services.

Materials. The MPDEQ (α : control script, .83; shame script, .88) and SSGS (α : baseline, .87; control, .90; shame, .90) were again used to assess peri-experiment dissociation and state shame, respectively. The five single item measures of shame,

anger, anxiety, guilt and sadness after the shame script were also used. The same rating scales as before were used to assess absorption in the stories. The trait measures were changed to include 1) the most well-known and utilized measure of trait dissociation and 2) a trait shame measure well used in clinical samples. This provided the most empirically sound assessment of how dissociative and shame-prone participants were coming into the study, as well as offering an assessment of the generalizability of the trait findings in Study 1. Participants also completed demographic questions (sex, age, ethnicity and reason for seeking counselling). The same experimental conditions used in study 1 (i.e., mirror, experimenter, blank screen/neutral) were used along with the same method for assessing gaze diversion. Participants also kept a diary of the frequency and intensity of intrusions associated with the stimuli for the first two days following the study.

The Dissociative Experience Scale (DES) is a 28-item self-report measure of dissociation in daily life (Carlson & Putnam, 1993). It assesses mundane and clinical manifestations of dissociation on an 11-point scale from 0 to 100 in 10 point increments. Eight items, known as the DES-Taxon, are collectively believed to assess pathological dissociation. Scores on the DES and DES-Taxon range from 0-100 with higher scores signaling more severe dissociative experiences. The DES is a well-researched and psychometrically sound measure of trait dissociation (Van Ijzendoorn & Schuengel, 1996). The alphas for the DES and DES-T in this study were .95 and .81, respectively.

The Experience of Shame Scale (ESS) measures shame experiences over the past year via 25 items rated on a 4-point scale from 1 (“not at all”) to 4 (“very much”) (Andrews, Qian, & Valentine, 2002). The ESS assesses the areas of characterological shame (12 items; e.g., shame of personal habits), behavioral shame (9 items; e.g.,

shame about doing something wrong), and bodily shame (4 items; e.g., feeling ashamed of one's own body). Higher scores indicate more shame proneness. The ESS has good psychometric properties in clinical groups (Doran, & Lewis, 2012). The internal consistency for this study was satisfactory for the ESS total scale (.94), and the characterological shame (.88), behavioural shame (.83) and bodily shame (.87) subscales.

Experimental stimuli.

Condition. Participants were randomly assigned to one of the same three conditions as study 1: mirror, experimenter, and white strips.

Shame Induction. Study 1 showed no differences across scenarios (bank, bedroom, pool) to increase shame feelings. Given the current sample were attending therapy and several had a history of abuse and humiliation, it was decided that the bank scenario would be best suited to induce shame without re-traumatizing participants.

Eye Gaze diversion. The same coding procedures used in study 1 were adopted for determining eye gaze diversion, with the exception that AS did the first set of coding and MJD did the second. They then examined disagreements by reviewing them together and reaching consensus.

Intrusion Diary. The intrusion diary allowed participants to record intrusions related to the content of the shame and neutral audio scripts over the two-day period following the study. Instructions were to complete the intrusion diary "Over the next two days (starting as soon as you leave today). *Intrusions are any thoughts/memories/images about the scenarios you heard, occurring when you had not intended to think about the scenarios.*" Participants were further instructed to record the time and description of each intrusion. They also recorded their perceived

level of distress for each intrusion on a Subjective Unit of Distress Scale (SUDS) from 0 (“totally relaxed, no emotion”) to 10 (“highest emotion you have ever felt”). On returning the diary, participants were asked to use a 0 (never remembered to write down the intrusions) to 10 (always remembered to write down the intrusions) point scale to address the following question: “To what extent did you feel you were able to record all your intrusive memories in the diary?”

Procedure. Participants were made aware of the study via an invitation letter sent to three services in the local area providing psychological therapy, including one focused on the adult outcomes of child abuse and neglect. The laboratory and procedure were the same as study 1, with the exception that following completion of the audio scripts and questionnaires, participants were given the intrusions diary and instructions for how to complete it. On returning the diary (three days later), they completed the diary compliance question. All procedures were approved by the relevant Human Ethics Committee.

Data Analysis

The analyses followed a similar template to study 1. Condition (mirror, experimenter, blank screen; $n = 11$), and emotional script (neutral, shame) were the key independent variables and state shame, gaze diversion, peri-experimental dissociation (MPDEQ), as well as frequency and intensity (distress) of intrusions were the central dependent variables.

Results

Trait variables and manipulation checks. Table 3 presents descriptive statistics for age, gender, ethnicity and the trait variables. Groups did not differ on age, $F(2, 30) = 1.57, p = .23, \eta_p^2 = .10$. No inferential statistics were calculated for gender, ethnicity, or reason for seeking therapy due to the low count in some cells.

There were small variations in gender distribution across conditions. New Zealand European was the dominant ethnicity (76%) and was spread evenly across conditions. The reasons for seeking therapy varied randomly across conditions. A one-way MANOVA across condition on ESS characterological shame, ESS behavioral shame, ESS bodily shame, ESS total shame, DES total and DES taxon scores found no multivariate main effect for condition, $V = .27$, $F(10, 54) = 0.87$, $p = .58$, $\eta_p^2 = .14$. The correlation between trait dissociation (DES total) and trait shame (ESS total) was moderately strong, $r = .37$, $p = .04$.

In examining how much participants felt ‘a part of’ and ‘absorbed in’ the narratives (Table 4), there were no main effects for emotional script, $V = .10$, $F(2, 29) = 1.56$, $p = .23$, $\eta_p^2 = .10$, or condition, $V = .09$, $F(4, 60) = .72$, $p = .58$, $\eta_p^2 = .05$, and no interaction effect, $V = .05$, $F(4, 60) = .35$, $p = .84$, $\eta_p^2 = .02$. A two-way emotional script (baseline, neutral, shame) by condition ANOVA on state shame revealed a main effect for script, $F(2, 60) = 8.14$, $p = .001$, $\eta_p^2 = .21$, with state shame elevated following the shame narrative compared to the neutral narrative, $t(32) = -3.67$, $p = .001$, and falling marginally short of significance compared to baseline, $t(32) = -1.91$, $p = .06$ (Table 4). There was no main effect for condition, $F(2, 30) = 0.85$, $p = .43$, $\eta_p^2 = .05$, and no interaction between condition and emotional script, $F(4, 60) = 0.87$, $p = .49$, $\eta_p^2 = .06$. However, when controlling for trait shame, state shame no longer differed across scripts, $F(2, 58) = 1.27$, $p = .33$, $\eta_p^2 = .04$, suggesting not unexpectedly that clinical participants who were more prone to shame had a greater shame response to the shame script. For gaze diversion in a two-way ANOVA (condition by emotional script), the main effect for script was significant, $F(1, 26) = 4.72$, $p = .04$, $\eta_p^2 = .15$, but there was no main effect for condition, $F(2, 26) = 0.34$, $p = .72$, $\eta_p^2 = .03$ or the interaction, $F(2, 26) = 0.78$, $p = .47$, $\eta_p^2 = .06$ (Table 4).

For the self-reported emotions after the shame condition, the main effect was significant, $F(4, 128) = 6.12, p < .001, \eta_p^2 = .16$. Shame scores ($M = 30.83; SD = 29.43$) were higher than guilt ($M = 11.81; SD = 25.24, F(1, 32) = 23.38, p < .001, \eta_p^2 = .42$) and sadness ($M = 21.30; SD = 31.35, F(1, 32) = 6.02, p = .02, \eta_p^2 = .16$) scores, and fell marginally short of being significantly higher than anger scores ($M = 19.03; SD = 30.97, F(1, 32) = 3.66, p = .06, \eta_p^2 = .10$). However, there was no difference between elevations of shame and anxiety ($M = 33.51; SD = 29.33$) scores, $F(1, 32) = .79, p = .38, \eta_p^2 = .02$. This finding may not be surprising given the sample was clinical participants primarily seeking professional help for anxiety, depression and trauma-related disorders.

Shame exposure and peri-experimental dissociation. A two-way ANOVA (emotional script x condition) produced a main effect for script, $F(1, 30) = 10.08, p = .003, \eta_p^2 = .25$, showing heightened dissociation during the shame narrative compared to the neutral narrative. There was no main effect for condition, $F(2, 30) = 2.61, p = .09, \eta_p^2 = .15$, or the interaction, $F(2, 30) = 1.87, p = .71, \eta_p^2 = .11$. In short, regardless of which condition participants were in, they reported elevations in dissociation when exposed to the shame narrative. This finding was supported by a significant correlation between state shame (SGSS) and peri-experimental dissociation (M-PDEQ), $r = .56, p = .001$. To isolate dissociation during exposure to shame-inducing stimuli, the ANOVA on dissociation during narrative exposure was re-run with trait dissociation and trait shame as covariates. With trait dissociation as the only significant covariate, $F(1, 28) = 10.46, p = .003, \eta_p^2 = .27$, the main effect for emotional script was no longer significant, $F(1, 28) = .27, p = .61, \eta_p^2 = .01$. The main effect for condition, $F(2, 28) = 1.52, p = .24, \eta_p^2 = .10$, and the interaction, $F(2, 28) = 1.75, p = .19, \eta_p^2 = .11$, remained non-significant. Seemingly, in this clinical group,

trait dissociation underpins the increases in dissociation following exposure to shame feelings.

Shame exposure and intrusive experiences. Intrusive memories were experienced by 20 of the 33 participants (61%) on day 1, with the majority related to the shame script (85%). On day 2, again 20 participants reported intrusions (61%), with 80% having at least one associated with the shame script. In examining intrusive memories across the two-day diary window, there was no difference between groups on their ability to record all intrusions (Mirror: $M = 7.20$; $SD = 0.34$; Experimenter: $M = 7.00$; $SD = 1.41$; Neutral: $M = 6.57$; $SD = 2.63$; $F(2, 15) = 0.10$, $p = .90$, $\eta_p^2 = .01$). A two-way Day (day 1, day 2) x Condition ANOVA on frequency of intrusions produced a main effect for Day, $F(1, 22) = 9.80$, $p = .005$, $\eta_p^2 = .31$, with more intrusions on day 1 than day 2. There was no main effect for condition, $F(2, 15) = .10$, $p = .90$, $\eta_p^2 = .01$, nor interaction, $F(2, 22) = 1.37$, $p = .28$, $\eta_p^2 = .11$. Regarding distress of intrusions, there were no significant main effects for Day, $F(1, 22) = 0.18$, $p = .67$, $\eta_p^2 = .01$, or condition, $F(2, 22) = 2.03$, $p = .16$, $\eta_p^2 = .16$, and no interaction, $F(2, 22) = 2.37$, $p = .12$, $\eta_p^2 = .17$.

To examine if state shame and dissociation during the shame script were associated with total intrusion frequency and distress (across both days), correlations were performed. State shame was not significantly associated with total frequency of intrusions, $r = .14$, $p = .51$, but was associated with total distress from intrusions, $r = .48$, $p = .02$. Similarly, peri-experimental dissociation was not significantly associated with intrusion frequency, $r = .17$, $p = .43$, but was associated with intrusion distress, $r = .61$, $p = .001$. Multiple regression analyses using Hayes (2013) PROCESS macro examined the indirect effect of peri-experimental dissociation on the relationship between state shame and total intrusion distress using bias-corrected bootstrapping

with 10,000 resamples. Note that if the confidence interval (CI) in these analyses does not include zero, the effect is considered statistically significant. Analyses revealed that peri-experimental dissociation significantly mediated the effects of state shame on total distress intrusions, *indirect coefficient* = 0.085, *SE* = 0.047, 95% CI [0.018, 0.207]. Thus, dissociation in response to increases in shame may have a role to play in the immediate distress of shame-based intrusions.

Discussion

We believe this is the first study to experimentally examine whether elevation in shame affects development of intrusions. Findings show that the majority of participants reported intrusions in the first two days following exposure to the experimental stimuli and the majority of these were associated with the shame script. Statistically, the narratives (primarily shame) produced more intrusions in the immediate aftermath of exposure (day 1) which reduced as time progressed (i.e., day 2). Different origins of shame (e.g., internal, external) did not produce more frequent or intense intrusions. Rather, there was a general increase in intrusions associated with the shame stimuli regardless of which condition elevated shame. These findings are consistent with Matos and Pinto-Gouveia's (2010) proposal that shame memories have the characteristics of trauma memories. Their study asked adult non-clinical participants to recall shame memories from childhood and adolescence. The current study evoked shame feelings via script and found that even low-level shame was capable of producing intrusions.

Dissociation activated by shame mediated the relationship between shame feelings and later distress of intrusions. Thus, the distress associated with intrusion about the shame scripts may be underpinned by the dissociation occurring in response to shame feelings. Previous studies using experimental designs with clinical and non-

clinical participants have found exposure to pictures or narratives designed to evoke fear and shock elevate dissociation; this in turn was related to the development of intrusive thoughts, including their distressing nature (Dorahy et al., 2016; Holmes et al., 2004). The current findings suggest that low-level, laboratory-based, shame-evoking stimuli have the capacity to produce heightened initial intrusions, and dissociation as a consequence of this shame appears to be a driver in the development of more distressing intrusions. These findings add support to the importance of shame and dissociation in the potential development of posttraumatic symptoms (Aakvaag, Thoresen, Wentzel-Larsen, Røysamb, & Dyb, 2014; Andrews et al., 2000; Leskela, Dieperink, & Thuras, 2002) and are also consistent with the emphasis DSM-5 puts on shame and dissociation in at least some cases of PTSD (APA, 2013).

However, in this study the shame condition not only produced elevations in shame, but also anxiety. Experimental inductions may inadvertently increase several different affects (Polivy, 1981), and whilst not easy to control, elevated anxiety is not unexpected in clinical groups when other negative affect is being induced. This is also congruent with previous work indicating that shame is often related to anxiety, to the point Gilbert (1998) notes “[a]nxiety appears central to the shame experience, and it is difficult to consider shame without it” (p. 4). Future work should explore designs that maximize shame over anxiety, as having an anxiety-only comparison condition would also be expected to increase reactive dissociation so could not parcel out the effect of shame versus anxiety. Study 1 showed higher elevations of shame compared to anxiety, and reactive dissociation was evident. These results seem to support the notion that shame played an active role in the reactive dissociation evident in study 2. This is further supported by peri-experimental dissociation acting as a mediator between state shame scores (assessed by the SSGS) and distress of intrusions, the

majority of which related to the shame narrative. Future studies should also determine if dissociation is reactive to painful emotions more generally, or more responsive to specific painful emotions. Such work could for example compare conditions evoking shame, anger, guilt, shock and grief on dissociative reactivity.

General discussion

These studies examined if dissociative phenomenology was reactive to increases in shame feelings. In both non-clinical (study 1) and clinical (study 2) samples, self-reported dissociation increased after exposure to a shame script compared to a neutral script, regardless of the contextual ratio between internal and external shame. Dissociation after shame was associated with distressing intrusions. While previous studies have demonstrated heightened dissociation from fearful or painful stimuli (e.g., Gómez-Pérez, López-Martínez, & Asmundson, 2013), the current studies demonstrate that shame also induces dissociation. Regarding trait measures, in Study 1, DSS trait dissociation and ISS trait shame correlated around .50, while in study 2 the DES and ESS correlated around .35. These moderate-to-strong correlations using different assessment tools are consistent with several studies examining the relationship between trait shame and dissociation (Dorahy et al., 2013; Irwin, 1998; Thomson & Jaque, 2013). Dissociation and shame are consistently related at a trait level, and at the state level heightened shame activates dissociative experiences.

Using a non-clinical sample, Rugens and Terhune (2013) found that trait dissociation was more highly related to state dissociation after guilt cues compared to other negative affective cues. The current study supported this view with exposure to shame feelings, but only in the clinical sample, where the relationship between dissociation and shame exposure dropped from significance when trait dissociation

was controlled. In the non-clinical sample, the association between peri-experimental dissociation and increased shame remained significant even after controlling for trait dissociation. This discrepant finding may have been due to methodological changes in trait measures, with the DSS used in study 1 as a measure of persistent dissociation over the past week, and the DES used in study 2, which does not anchor ongoing dissociative experiences to a particular time frame. Making a more general appraisal of dissociative experiences, the DES may be more highly related to peri-experimental dissociation than offering an appraisal of recent dissociative experiences (DSS) and no studies to date have assessed if the DES and DSS are differentially related to peri-traumatic or state dissociation.

A second potential explanation for trait dissociation being a covariate in the link between peri-experimental dissociation and heightened shame in study 2, but not study 1, is that trait dissociation may underpin or drive peri-traumatic dissociative experiences in clinical groups, but have less impact on immediate dissociative responses in non-clinical groups. Some studies have found a very modest statistical link between trait and peri-traumatic dissociation, particularly in resilient groups (e.g., Galatzer-Levy, Madan, Neylan, Henn-Haase, & Marmar, 2011). Other studies have found a stronger relationship (Hagenaars & Krans, 2011), especially in more vulnerable groups (e.g., Craparo et al., 2014). The association between trait and peri-traumatic dissociation in the face of heightened affective experience requires further investigation.

One limitation of the current studies was the analog of internal shame via a mirror staring task. While mirror staring offers an effective means of confronting participants with themselves as they are exposed to neutral or shame-infused scripts, it has also been used as a means of inducing dissociation (e.g., Rugens & Terhune,

2013). Consequently, heightened peri-experimental dissociation in the mirror/internal shame condition may be the result of staring at the mirror rather than increases in shame affect. However, this possibility is unlikely to offer a full account of increases in dissociation in the mirror condition, as the shame script produced higher dissociation than the neutral script in this condition. In addition, the shame-inducing script produced increases in dissociation in all three conditions (i.e., self/internal shame, experimenter/external shame, white strips/general shame), suggesting the shame scripts themselves had the capacity to heighten dissociative phenomena. The internal shame condition was also compromised as a pure assessment of this form of shame by the researcher remaining in the room during this manipulation, even though out of sight. Whilst staring at oneself may have heightened internal shame, some feelings of shame in this condition may have come from the presence of the researcher (external shame). Given all three conditions did not differ with regard to dissociation, it seems the *feeling* of shame, rather than the way it is induced, is central to the reactive experience of dissociation. However, future work should examine the link between pure internal shame and dissociation. This work can also assess whether the feelings of shame in the external condition were largely driven by the implied presence of another (e.g., the experimenter) while the feelings of shame in the internal condition were largely driven by negative self-appraisal.

The current findings have potential implications for several different settings. For example, both therapists and police should be aware of the potential for dissociative experiences whilst individuals disclose shame-infused experiences. In the clinical setting this may disrupt efforts to therapeutically deal with shame, as the person feels detached and separated from their experience and their self. In an investigative setting, it may disrupt a person's efforts to provide a clear and coherent

narrative. In these and other settings, the association between heightened shame feelings, reactive dissociation and distressing intrusions may lead to residual intrusive distress following the narration of shame-filled experiences. Efforts to provide a containing environment that minimizes excessive elevations in shame and the need to draw on dissociation as an internal management strategy, may go some way to reducing the distressing after-effects of shame disclosures, which may facilitate future efforts to confront such feelings.

As shame and its correlates continue to be investigated in clinical and non-clinical groups, and in those with traumatic stress or trauma-related disorders, dissociation should be considered an important response, with future work examining the opposite direct response, if shame is a reaction to dissociative experiences, especially in interpersonal interaction contexts.

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Table 1: Descriptive statistics for demographic and trait variables

	Mirror; n = 26	Experimenter n = 26	Neutral; n = 26
Age: Mean (SD)	21.54 (3.90)	22.77 (6.12)	21.35 (3.68)
Sex: M/F; n	10/16	6/20	3/23
Ethnicity: n			
NZ European	18	23	22
NZ Maori	3	2	1
Other	5	1	3
ISS Trait Shame: M (SD)	53.50 (16.34)	54.19 (16.11)	54.23 (14.53)
ISS Self-Esteem: M (SD)	22.03 (4.67)	21.58 (4.77)	21.65 (3.12)
DSS Somatoform dissociation: M (SD)	6.47 (8.71)	9.81 (13.52)	7.48 (7.48)
DSS Psychoform Dissociation: M (SD)	10.46 (9.41)	16.01 (11.40)	10.90 (11.20)
DSS Trait Dissociation Total: M (SD)	8.68 (7.65)	13.13 (10.50)	9.35 (8.90)

Table 2: Means and standard deviations for manipulation check and hypothesis testing dependent variables across condition, and Partial Eta Squared for peri-experimental dissociation across conditions

	Mirror; n = 26			Experimenter n = 26			Neutral; n = 26		
	Base- line	Neut- ral Script	Sha- me Script	Base line	Neut- ral Script	Sha- me Script	Bas elin e	Neu tral Scri pt	Sha- me Script
'A part of': M (SD)		2.54 (.95)	3.00 (1.17)		3.23 (.91)	3.08 (.89)		2.81 (.85)	2.88 (.91)
'absorbed in': M (SD)		2.73 (.96)	3.19 (1.13)		3.27 (1.12)	3.35 (.94)		3.08 (.80)	3.00 (1.10)
State shame	5.92 (1.54)	5.62 (1.02)	8.42 (3.98)	6.35 (2.39)	5.92 (1.38)	10.08 (5.22)	5.53 (1.27)	6.27 (2.02)	8.30 (4.37)
Gaze		.46 (.60)	.76 (.95)		1.09 (1.11)	1.87 (2.92)		.86 (.96)	1.00 (1.27)
Peri-experimern al dissociation		15.65 (6.91)	18.07 (7.51)		12.77 (5.66)	15.42 (5.78)		14.42 (5.65)	16.92 (6.41)
		$\eta_p^2 = .12$			$\eta_p^2 = .17$			$\eta_p^2 = .20$	

Table 3: Descriptive statistics for demographic and trait variables

	Mirror; n = 11	Experimenter n = 11	Neutral; n = 11
Age: Mean (SD)	41.27 (11.21)	30.82 (15.34)	36.18 (14.65)
Sex: M/F; n	7/4	5/6	3/8
Ethnicity: n			
NZ European	9	8	8
NZ Maori	0	0	1
Other	2	3	2
Reason for therapy: n			
Anxiety	3	2	3
Depression	0	4	3
Grief	2	0	0
Personal Growth	1	0	1
Personality	0	0	1
Trauma/PTSD	4	4	2
Relationship problems	1	0	1
Eating	0	1	0
ESS Characterological shame: M (SD)	28.18 (8.96)	27.45 (4.95)	30.27 (7.71)
ESS Behavioral shame: M (SD)	22.45 (5.68)	26.45 (4.46)	26.09 (6.11)
ESS bodily shame: M (SD)	9.09 (2.95)	11.27 (3.41)	11.09 (3.73)
ESS total shame: M (SD)	59.72 (15.80)	65.18 (9.44)	67.45 (16.07)
DES Total: M (SD)	16.37 (17.41)	21.28 (13.75)	24.95 (17.93)

DES Taxon: M (SD)	10.25 (17.19)	13.00 (14.48)	18.00 (13.55)
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Table 4: Means and standard deviations for manipulation check and peri-experimental dissociation across conditions for Study 2.

	Mirror; n = 11			Experimenter n = 11			Neutral; n = 11		
	Base- line	Neut- ral Script	Sha- me Script	Base- line	Neut- ral Script	Sha- me Script	Bas elin e	Neu tral Scri pt	Sha- me Script
'A part of': M (SD)		3.45 (.82)	3.55 (1.13)		2.91 (1.04)	3.27 (.91)		3.64 (.92)	3.36 (1.12)
'absorbed in': M (SD)		3.27 (1.19)	3.55 (1.21)		2.91 (1.22)	3.45 (.82)		3.55 (1.13)	3.55 (.93)
State shame	7.55 (4.20)	5.81 (2.40)	9.55 (4.78)	9.73 (4.45)	7.27 (3.26)	9.36 (4.78)	9.00 (5.80)	7.55 (2.73)	12.54 (7.11)
Gaze Diversion		.59 (1.35)	.89 (1.60)		.73 (.91)	.87 (1.03)		.17 (.24)	.77 (.72)
Peri- experimern al dissociation		10.36 (2.66)	13.73 (5.00)		13.73 (6.62)	14.27 (4.27)		14.72 (4.94)	19.54 (9.47)

Appendix

Bank Scenario – Shame

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|----|---|
| 1 | You go into your local Bank (Neutral sentence) |
| 2 | You walk up to a free Teller (Neutral sentence) |
| 3 | You ask to withdraw \$100 (Neutral sentence) |
| 4 | As you stand there, you notice the Teller staring at your face |
| 5 | The Teller begins to smirk |
| 6 | The Teller points to your face and mentions you have nasal mucus on your cheek (Shame sentence) |
| 7 | You quickly get a tissue from your pocket to wipe your face clean (Shame sentence) |
| 8 | As you do so, another Teller nearby laughs mockingly at you (Shame sentence) |
| 9 | You wipe the mucus off (Shame sentence) |
| 10 | You feel vulnerable, inferior and exposed (Shame sentence) |
| 11 | You wish you could dig yourself into a hole (Shame sentence) |
| 12 | You take the \$100 in a rush and head for the door (residual sentence) |
| 13 | On the way out you can sense the Tellers talking about you (residual sentence) |
| 14 | You leave the bank (residual sentence) |
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Bank Scenario - Control

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|----|---|
| 1 | You go into your local Bank (Neutral sentence) |
| 2 | You walk up to a free Teller (Neutral sentence) |
| 3 | You ask to withdraw \$100 (Neutral sentence) |
| 4 | As you stand there, you make conversation with the Teller |
| 5 | The Teller begins to smile |
| 6 | The Teller points to your withdrawal form and asks you to sign it (Shame-equivalent sentence) |
| 7 | You notice you haven't and get a pen from your pocket (Shame-equivalent sentence) |
| 8 | As you do another teller nearby smiles warmly at you (Shame-equivalent sentence) |
| 9 | You sign the withdrawal form (Shame-equivalent sentence) |
| 10 | You feel comfortable and relaxed in the bank (Shame-equivalent sentence) |
| 11 | You wished you had more time to talk to the teller (Shame-equivalent sentence) |
| 12 | You take the \$100 and head for the door (residual sentence) |
| 13 | On the way out you say goodbye to the Tellers (residual sentence) |
| 14 | You leave the bank (residual sentence) |
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